

**Do Postoperative Neurological Complications Vary Between Anterior Cervical Discectomy and Fusion (ACDF) for Cervical Radiculopathy or Cervical Myelopathy?**

**Introduction:** Well-powered data pertaining to neurological complications following anterior cervical discectomy and fusion (ACDF) between patients with cervical radiculopathy and myelopathy (CR and CM) is lacking. We aimed at identifying whether baseline CR and/or CM may predispose patients undergoing ACDF to increased postoperative risk of neurological complications.

**Methods:** The SPARCS database was queried to identify all patients undergoing 2-3 level ACDF for CR or CM from 2009 to 13 with  $\leq 90$ -day follow-up. Demographic, hospital-related parameters, and 90-day neurological and other complications, readmissions, and revisions data were queried. Multivariate logistic regression was used to identify independent predictors of overall and neurological complications.

**Results:** 5,221 patients were included (CM, n=4,401; CR, n=820). CM patients were older (56.9 vs 49.5 years) and had higher comorbidity burden (Deyo 0.6 vs 0.4),  $p < 0.05$ . CM patients had lengthier hospital stay (LOS) and higher total charges (3.7 vs 2 days; \$51,549 vs \$39,162), all  $p < 0.001$ . CM incurred higher 90-day total complications (7.5 vs 2.7%), readmissions (3.8 vs 0.7%), and revisions (7.6 vs 5.1%), all  $p \leq 0.032$ . Regression analysis revealed that CM was associated with increased odds of 90-day readmissions, medical complications, total complications, and revisions (ORs=3.8, 2.8, 1.7, and 1.4, all,  $p \leq 0.043$ ) but was not associated with increased odds of 90-day neurological complications.

**Discussion:** In congruence with the literature, we showed increased rates of total complications in patients with CM and/or CR. However, in our study, CM patients were older and with higher comorbidity burden, hospital charges, LOS, and total complications rate still had similar postoperative 90-day neurological complication rates to CR patients following 2-3 level ACDF.

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